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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of	) GEN Docket No. 90-314) ET Docket No. 92-100
Amendment of the Commission's Rules to Establish New Personal Communications Services	) RM-7140, RM-7175, RM-7617,) RM-7618, RM-7760, RM-7782,) RM-7860, RM-7977, RM-7978,) RM-7979, RM-7980

COX ENTERPRISES, INC. REPLY COMMENTS

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January 8, 1993

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SUMMARY

The Commission has received many comments in support of licensing PCS in a manner that advances the Commission's goal of introducing competition into the local telecommunications market. It has also received numerous comments by parties that apparently are less interested in promoting PCS than in maintaining or expanding their existing position in the local telecommunications market. The Commission must look beyond the assertions of entrenched wireless services providers and determine what best advances the public interest. Local Exchange Carrier ("LEC") and their cellular affiliates comments, for example, demonstrate support only for PCS operations that they can dominate or control. The promise of PCS is not merely the development of a new service, but the public's opportunity to select from competing wireless service providers. PCS will flourish only if it is provided by entities not focused on maintaining their market dominance over local telecommunications.

Fragmenting available spectrum among many operators will significantly enhance the chances of incumbent service providers to preclude competition. Cox submits that any party that analyzes the impact of incumbent microwave operations on the development of PCS in major markets must conclude that a 20 MHz assignment to each PCS licensee will be totally insufficient and will result in a PCS provider's being blocked from delivering service to many areas, including critical high density and/or metropolitan areas. This will have a profoundly adverse effect on the ability of the PCS provider to market its services in competition with other wireless alternatives.

Each PCS operator must receive a spectrum assignment of at least 40 MHz to fully develop a range of competitive services. In addition to the 40 MHz

assignment, the Commission should create a substantial spectrum reserve in the 1850-1990 MHz band that would be available to PCS providers that are blocked from offering service by the presence of incumbent microwave operations that would be grandfathered and, therefore, not subject to relocation. By assigning 40 MHz plus a substantial reserve, each PCS licensee should have access to sufficient amount of spectrum to provide a service competitive with other wireless services and with the features customers will expect.

It is particularly ironic that LEC cellular affiliates insist that their cellular operations require spectrum in addition to the 25 MHz of clear spectrum they already hold, while at the same time arguing that 20 MHz of congested spectrum is sufficient for PCS competitors to provide their services. The failure to assign sufficient spectrum to PCS operators could well doom PCS to a niche service.

Major Trading Areas are roughly comparable with the regional markets cellular, paging and SMR provide to their customers today and are imperative for the development of PCS. MSA/RSA licensing areas are not comparable with the regional market size of wireless services and, therefore, are so small that they would disadvantage PCS vis-a-vis these other services. Licensing PCS with MSA/RSA markets would require PCS providers to expend enormous time and financial resources to assemble fragmented areas into a cohesive service region that wireless customers expect. This time and money could be better spent developing a service that can compete in the local telecommunications market. Cox submits that MSA/RSA market size will severely constrain and artificially delay the inevitable growth of PCS towards regional markets, the natural markets for all wireless services. Cox also believes that the interconnection policies

suggested in the Notice fall far short of the necessary interconnection and pricing reform required to assist PCS in becoming a local telecommunications alternative to the LEC monopoly.

Despite the Commission's best efforts to reform lotteries, they simply will not result in the selection of the best qualified PCS licensees. Comments in this proceeding demonstrate that lotteries, if employed for PCS licensing, will be abused. A streamlined comparative hearing is a far superior mechanism to select qualified PCS licensees.

PCS license eligibility should be tied to a potential provider's ability and incentive to provide competitive telecommunications services. Because the LECs and their cellular affiliates have no incentive to foster an alternative to their existing services, the public interest benefit in the development of competing service providers will not be advanced if LECs or their cellular affiliates are PCS licensees within their markets.

Finally, there is no merit in the assertion that cable participation in PCS is foreclosed by the cable/telco cross-ownership rule. The cable-telco cross-ownership prohibition clearly contemplates cable offerings of non-video programming, including local telecommunications service offerings. For these reasons, LEC arguments against cable participation in PCS should be dismissed.

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Communications Services	) RM-7979, RM-7980
	)

REPLY COMMENTS

Cox Enterprises, Inc. ("Cox"), by its attorneys, hereby submits reply comments in the above captioned proceeding.[1/] Cox is a broadly diversified company with significant interests in cable television, radio and television broadcasting, newspaper publishing, automobile auctions and other businesses. As described in its comments in this proceeding and its PCS experimental progress reports, Cox has been in the forefront of utilizing cable television infrastructure as a delivery medium for PCS. Cox's experiments with PCS have proven the technical feasibility of cable delivery of PCS and demonstrate that cable plant is well suited to accelerate delivery of PCS to the public.

The comments filed in this proceeding reveal a basic disagreement regarding the direction of PCS development. Cox and a number of other commenters believe that, if properly constituted, PCS can provide true local telecommunications competition. Others, while stating their support for

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1/ See Personal Communications Services, 7 FCC Rcd 5676 (1992) (hereinafter "Notice"). Cox limits its comments to the regulatory issues raised in the Notice by 2 GHz PCS licensing and operations.

competition, seek to forestall the establishment of competition to their existing operations. Local Exchange Carrier ("LEC") and their affiliates comments for example, demonstrate support only for PCS operations that they can dominate or control.

In making critical decisions regarding PCS license eligibility, the Commission should recognize that PCS will be provided within a highly competitive mobile communications market. Completely apart from existing cellular operations, digital Specialized Mobile Radio ("SMR"), common carrier paging, private carrier paging and Part 15 equipment already will be providing consumers with a wide array of choices to satisfy their wireless communications needs prior to the licensing of a single PCS provider. Regarding PCS as the sole competitor to cellular overlooks this important fact.

Only the Commission's prompt and decisive resolution of major licensing and regulatory issues will determine whether those companies that possess the financial ability, technical skills and incentives to foster local telecommunications competition will ultimately become licensed PCS providers. Cox urges the Commission to establish a PCS regulatory framework with an appropriate market size and adequate spectrum so that PCS providers can become pro-competitive telecommunications forces.

I. THE COMMENTS DEMONSTRATE A NEED FOR ADEQUATE SPECTRUM ASSIGNMENTS TO DEVELOP PCS

Cox and other commenters generally support the Commission's proposal that the amount of spectrum available to each PCS provider must be adequate to

develop competitive services.[2/] There is disagreement among commenters, however, regarding the amount of spectrum each PCS provider will need to provide competitive services.

A. Comments Favoring Less Than 40 MHz Assignments Oversimplify or Ignore the Difficulties of Introducing Service in Spectrum Crowded with Incumbent Microwave Operators.

Many commenters, most notably LECs and cellular service providers, favor the assignment of 20 MHz per carrier with four or five licensees per market.[3/] These entities generally argue that a large number of licensees per market will enhance competition. In their view, competition will be realized with many PCS providers operating on limited amounts of spectrum. In reality, fragmenting the available spectrum among many operators will significantly enhance the chances of incumbent service providers to preclude viable competition. Additionally, comments supporting assignments of less than 40 MHz: (a) do not consider the presence of incumbent microwave operators that cannot be relocated under the Commission's rules; or (b) falsely assume that microwave operations easily can be relocated; or (c) fail to consider the impact of the uneven distribution of incumbent microwave operators on the amount of useable spectrum assigned to each licensee.

Cox's comments proposed a 40 MHz minimum assignment of spectrum per licensee (with access to a spectrum reserve) based largely upon the need to design PCS systems that accommodate wideband incumbent microwave operators,

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2/ Notice at 5691.

3/ Other commenters suggest 25 or 30 MHz assignments for each licensee.

many of whom will be grandfathered under the Commission's relocation rules. Analysis of actual microwave congestion confirms that frequency assignments of less than 40 MHz could prevent PCS providers from offering service in many areas within major cities.[4/]

Cox has made a comparative analysis of the impact of the Commission proposal to allocate 30 MHz per licensee; the LEC and cellular industry proposed allocation of 20 MHz; and Cox's suggested approach of a 40 MHz assignment with access to a reserve on the implementation of commercial service on 1850-1990 MHz within San Diego.[5/] An assignment of less than 40 MHz clearly provides PCS licensees with insufficient flexibility to offer a full range of services to the public, and fails to provide additional capacity to existing PCS operations to satisfy anticipated customer demand at a competitive price.

Cox has performed its own frequency coordination and spectrum congestion analysis as part of its PCS experiments in San Diego and its business evaluation of the region. These studies and subsequent analysis demonstrate

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4/ For example, American Personal Communications ("APC") submitted a comprehensive study to the Commission on November 20, which demonstrated the severe blockage that can be anticipated with the sharing of microwave frequencies by five or fewer PCS providers within the eleven largest metropolitan areas even after the relocation of several microwave incumbents.

5/ For purposes of its analysis, Cox assumed that 1910-1930 MHz was assigned to unlicensed operations and, therefore, was unavailable for use by PCS licensees. As discussed infra., Cox supports the Major Trading Area as the licensing market for PCS. Cox determined, however, that the San Diego metropolitan area is representative of the microwave blockage problems a PCS licensee will encounter in the most critical areas throughout an MTA.

severe congestion of the 1850-1990 MHz spectrum band throughout southern California, including the San Diego metropolitan area.[6/]

To perform its analysis, Cox obtained an updated inventory list of all the 1850-1990 MHz microwave users in the Major Trading Area that includes San Diego. Based upon its initial review, Cox commissioned Comsearch to do an in-depth analysis of available frequencies in the San Diego metropolitan area using a computer model that accounts for microwave site specific information such as microwave receiver bandwidth, antenna pattern and height.[7/] The model plots areas where varying amounts of spectrum can be considered to be available under varying conditions. The model also illustrates in-depth the impact of microwave incumbents on PCS development under the three alternative PCS block assignment proposals for the San Diego metropolitan area. Finally, the model compares the operating environment with all 1850-1990 MHz microwave licensees

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6/ As noted in Cox's quarterly progress reports, Cox's technical tests were designed to prove the feasibility of cable carriage of PCS, not coexistence with microwave operations. Accordingly, Cox located its testbed and selected test frequencies in the 1850-1990 MHz range so as to avoid the possibility of microwave interference.

7/ The computer utilizes a Hata propagation model to calculate signal levels. This model assumes a PCS transmitter at the center of every 10 second by 10 second grid block (approximately 0.19 by 0.16 miles block) in the metropolitan area, and sums the contribution from each of these PCS transmitters along with the PCS base station transmitters into all the microwave receivers in the metropolitan area. When the total PCS contribution exceeds the microwave receiver interference threshold, the grid blocks and frequencies are designated as unavailable for shared use.

and with only those public safety licensees grandfathered under the Commission's rules.[8/]

The spectrum availability plots for San Diego are attached to these comments. The first set of attachments (1-6) illustrates spectrum availability to each of six blocks of 20 MHz when all microwave paths are considered. The next several attachments (7-12) illustrate the spectrum availability after relocating all non-exempt microwave paths.

Attachments 13-16 repeat this analysis with four blocks of 30 MHz each and all microwave paths present. Attachments 17-20 show the impact of removing non-exempt microwave incumbents on this same proposed allocation.

Finally, attachments 21-23 show the effect of microwave incumbents on a three block 40 MHz allocation analyzing all microwave paths. Attachments 24-26 show spectrum availability among the 40 MHz blocks considering only exempt microwave paths.

The magnitude of the microwave blockage problem is evident when the areas of blockage are related to population centers within San Diego, including downtown San Diego, the Airport, Balboa Park, Jack Murphy Stadium, Coronado and North Island Naval Air Station. Of the 120 MHz theoretically available for PCS licensees in the 1850-1990 MHz band, no frequencies are available in any of these areas for licensed PCS operation on a shared, non-interfering basis. By moving all of the non-exempt microwave licensees, only 30 to 40 MHz can be

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8/ Within the San Diego metropolitan area there are 24 microwave paths in the 1850-1990 MHz band, 10 of appear to be exempt from relocation under the Commission's rules.

cleared. Such limited spectrum availability in the densely populated area of the San Diego market raises questions about the viability of PCS as a wireless alternative.

It is readily apparent both from Cox's analysis and the Comsearch plots that the spectrum environment facing PCS licensees seeking to introduce service is bleak. Cox's results are consistent with those of APC for the eleven largest metropolitan areas and Cox's analysis of additional areas within the San Diego MTA suggest a similar or even worse microwave blockage problem.[2/]

Frequency assignment in 20 MHz blocks will completely foreclose the introduction of service in many areas within and around cities known to have a high demand for portable telecommunications services. This inability to provide service certainly will be regarded by consumers as poor service, adversely affecting a PCS provider's ability to market its coverage capabilities vis-a-vis other wireless services. Even for the PCS provider fortunate enough to have been assigned relatively uncongested frequencies to offer service, a 20 MHz assignment is insufficient to develop service in some locations and provides little capacity for growth in demand for service.

The entities advocating a 20 MHz block assignment are LECs and their cellular affiliates who have the most to gain from fragmented and ineffective PCS operations that lack the capacity to serve critical downtown coverage areas. Masking their true motive, they claim that a 20 or 25 MHz assignment scheme is

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2/ Although not completed at this time, preliminary analysis indicates that in the Downtown Los Angeles, Riverside and San Bernardino areas, there are no available frequencies for PCS start-up and only 40 MHz in total can be made available from relocation of non-government microwave users.

pro-competitive. This argument ignores the severe blockage problem Cox has documented in San Diego. Furthermore, the licensing of five, four or even fewer licensees in each market will simply divide the financial resources, technical expertise and available spectrum into pieces that are far too small to provide meaningful competition either to the LEC landline monopoly or to the cellular industry. It is particularly ironic that LEC cellular affiliates insist that their cellular operations require spectrum in addition to the 25 MHz of clear spectrum they already hold, while at the same time arguing that 20 MHz of congested spectrum is sufficient for PCS competitors to provide their services.

The Commission already has committed enormous time and resources to identify suitable spectrum for the development of PCS. It has initiated a complex, politically contentious multi-phased rulemaking to accommodate PCS and other emerging technologies within spectrum already utilized by existing licensees.[10/] Additionally, the Commission has frequently stated its commitment to promote competition in providing local exchange services.[11/] The failure to assign sufficient spectrum to PCS operators could well doom PCS to a niche service. It would indeed be unfortunate if the enormous opportunity to open up

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10/ Notice of Proposed Rule Making, ET Docket No. 92-9, 7 FCC Rcd 1542 (1992); Further Notice of Proposed Rule Making, ET Docket No. 92-9, 7 FCC Rcd 6100 (1992); First Report and Order and Third Notice of Proposed Rule Making, ET Docket No. 92-9, FCC 92-437, released October 16, 1992.

11/ Notice of Proposed Rulemaking and Notice of Inquiry, CC Docket No. 91-141, 6 FCC Rcd 3259 (1991); Second Notice of Proposed Rulemaking, CC Docket Nos. 91-141 and 80-286, FCC 92-441, released October 16, 1992; Report and Order and Notice of Proposed Rulemaking, CC Docket Nos. 91-141 and 92-222, 7 FCC Rcd 7369 (1992); Memorandum Opinion and Order, CC Docket No. 91-141, FCC 92-552, released December 18, 1992; Order, CC Docket No. 91-141, FCC 92-551, released December 18, 1992.

the local exchange to competition was squandered by underestimating the true level of frequency congestion at 1850-1990 MHz. Even more unfortunate for the viability of PCS would be the success of the deliberate campaign by LECs and their cellular affiliates to undermine PCS by claiming that meager 20 MHz spectrum assignments are "pro-competitive."

B. The OPP Paper Recognizes that PCS Development Can Be Constrained By Incumbent Microwave Users.

Following receipt of the initial round of comments, the Commission placed in the docket files for public consideration a paper prepared by the Commission's Office of Plans and Policy ("OPP") that analyzed the cost structure of PCS.[12/] The OPP Paper reviewed economic efficiencies associated with alternative PCS infrastructures and commented on the optimum frequency assignments for PCS providers. The OPP Paper proposed that a minimum of 20 MHz of clear spectrum be assigned to each licensee, but acknowledged that:

> in reality PCS applications will have to coexist with existing point-to-point microwave users in the 2 GHz band. Barring alternative means for compensating these users to move to other frequencies, PCS providers will not be able to utilize the full amount of the spectrum in the allocation due to these microwave users for several years. The severity of this problem hinges upon the number of microwave links within a service area, and the location of the links relative to PCS usage patterns. . . . In short, while the model results show that the benefits of additional spectrum above 20 MHz of clear spectrum are minimal, the increased interference requirements due to incumbent microwave users could be a reason

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12/ Putting It All Together: The Cost Structure of Personal Communications Services, David P. Reed, November 1992, OPP Working Paper No. 28 ("OPP Paper").

> for a larger spectrum allocation size, particularly in regions of dense microwave use.[13/]

Using the San Diego MTA as a representative example, Cox submits that PCS implementation requires at least a 40 MHz assignment (plus a reserve) for each licensee to achieve an actual frequency assignment yielding anything near 20 MHz of clear spectrum.[14/] The OPP Paper assumes that all or most microwave users can be relocated, making it possible in many areas to provide service with a 20 MHz assignment. This assumption, however, overlooks the presence of numerous grandfathered microwave operators that will never be required to relocate and that must be protected from interference by PCS providers.

As demonstrated by Cox's spectrum utilization analysis, the severity of the long term spectrum constraint in San Diego is due to the large number of grandfathered microwave users which will make provision of service on a 20 MHz allocation impossible in many areas of the city. The difficulty that the spectrum congestion would present for PCS to become a competitive service is obvious. In comparison, PCS' cellular competitors have access to a full 25 MHz of spectrum throughout metropolitan areas and larger regions free from the constraints of accommodating incumbent users and the costs associated with sharing spectrum. Even with an allocation of 40 Mhz, PCS licensees will incur the cost of designing effective sharing technologies as well as the costs of relocating incumbents that can be moved.

13/ OPP Paper at 53-54, fn. omitted.

14/ APC's study of incumbent microwave congestion in the top eleven metropolitan areas and Cox's supplemental research supports this finding.

To address the constraints imposed by incumbent microwave operators, the OPP Paper suggests assigning spectrum either in 30 MHz blocks, thereby providing a 10 MHz "cushion," or permitting a licensee to acquire or combine operations with another licensee to yield a 40 MHz assignment.[15/] As Cox's study demonstrates, a 30 MHz assignment is insufficient to address the incumbent microwave blockage problem. Moreover, even the OPP Paper acknowledges that a 30 MHz allocation would not fit well into the existing 2 GHz channelization plan.[16/]

The OPP proposal to license six 20 MHz licensees and to permit consolidations within a market up to a 40 MHz cap does not resolve the severe spectrum constraints Cox or other PCS providers will face in implementing PCS in San Diego and other major cities. Instead, it has the perverse effect of imposing additional costs upon those licensees assigned particularly congested spectrum since they must acquire an additional 20 MHz from another licensee. Cox submits that additional costs of spectrum simply contribute to the economic infeasibility of providing a competitive PCS service. The assignment of 40 MHz of spectrum shared with grandfathered microwave users is the minimum assignment necessary to develop competitive PCS.

C. A Spectrum Reserve Is Required

A superior and fairer method of dealing with the unequal amounts of usable spectrum to be assigned to PCS licensees would be to implement a PCS

15/ OPP Paper at 55.

16/ Id.

spectrum reserve as proposed in Cox's comments. Such a reserve would permit the assignment of spectrum among PCS operators in equal 40 MHz blocks, yet still allow severely spectrum constrained providers to access additional reserved bandwidth on an as-needed basis. The reserve would consist of all unassigned spectrum in the 1850-1990 MHz band. By assigning 40 MHz plus the reserve spectrum, each PCS licensee should have access to the same 25 MHz allocation each cellular licensee holds.

Cox proposed that this reserve spectrum be relinquished by PCS licensees at the time a microwave user in the PCS licensee's block relocates to a higher band, to an alternative medium, or otherwise surrenders its license and permits full use of these frequencies by PCS operators. Numerous other commenters supported some form of spectrum reserve.[17/]

The concept of reserving spectrum for use and future allocation is not new. In the Land Mobile Radio proceedings, the Commission allocated 40 MHz of spectrum to cellular mobile radio systems and 30 MHz to private mobile radio services. The Commission also advocated "the establishment of reserve bands to accommodate new land mobile services or unexpected growth in existing services. . . . the concept is an excellent one and a generous amount of reserve spectrum

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17/ See Comments of Comcast PCS Communications, Inc. at 17-18; American Personal Communications at 6; Ameritech Operating Companies at 10-11; McCaw Cellular Communications, Inc. at 5; PCN America, Inc. at 4; Telmarc Telecommunications, Inc. at 12-15.

has been incorporated into our allocation plan."[18/] The Commission reserved 45 MHz of spectrum which was allocated over the next 15 years.

In adopting the land mobile radio rules, the Commission's primary concern was retaining regulatory flexibility in a situation where the form of future technological development was uncertain. The wisdom of the Commission's decision to reserve spectrum for future land mobile services can be seen in the wide variety of services which would not have been possible without this spectrum reserve.[19/]

Assignment of spectrum for PCS use presents the same need for flexibility in order to maximize the potential of this new technology. Some form of spectrum reserve is the optimal method of maintaining the necessary flexibility to handle future developments in PCS, including inequities and service blockage that may arise when operators are assigned to spectrum that is congested with grandfathered microwave users. Cox submits that the implementation of a substantial spectrum reserve is more equitable than adoption of a blind block assignment which penalizes PCS operators who are assigned particularly congested spectrum.

18/ Future Use of 806-960 MHz, 46 F.C.C. 2d 752, 759 (1974) (Second Report and Order).

19/ The Commission allocated the 45 MHz reserve as follows: 10 MHz for additional cellular use, 10 MHz for additional private land mobile use, 6 MHz for public safety use, 2 MHz for general purpose mobile use, 4 MHz for air-to-ground telephone service, 1 MHz for private operational fixed use, 3 MHz for private and common carrier paging, 6 MHz for government/non-government fixed use and 3 MHz for broadcast auxiliary operations.

D. PCS Providers Need Sufficient Capacity to Provide Competitive Service

Once PCS is licensed, PCS providers will enter the highly competitive wireless market in competition with well established operators. Unlike the early cellular days when there was uncertainty regarding the evolution of and demand for cellular service, the consumer has a fixed expectation of the services available from wireless providers: high speed wide area coverage, intersystem interoperability, roaming, small portable and inexpensive equipment. As several commenters have observed, the cellular industry is in the enviable position of evolving at its own pace to provide a microcellular service using its embedded base of customers, its frequencies, its existing facilities and administration.[20/]

In contrast, PCS operators will have no established mobile market base nor existing mobile infrastructure that can evolve over time. As the CT-2 marketing disaster in the United Kingdom demonstrates, carriers that roll out services available only in small zones and that have limited features (such as one-way calling) are courting failure. To be competitive, PCS providers must offer as nearly ubiquitous and full featured a service as possible from the time they initiate service. Given the PCS provider's need to design a system from the ground up to support a microcellular, low power portable infrastructure, this will be an enormously expensive undertaking.

Since a low powered, microcellular PCS provider will not be in a position to offer high speed vehicular handoff service to cellular's high end, price

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20/ See, e.g. Comments of the Department of Justice at 5, citing Bell Atlantic Pioneer Preference Request at 14-15. See also PacTel Corporation Pioneer Preference request at 8.

insensitive business customer, its target market will be lower speed pedestrian users. Market demand studies have shown that these potential customers are more price sensitive. At the same time, they are unwilling to abandon the features available from cellular service. As a result, PCS providers must make an enormous upfront infrastructure investment to meet customer expectations while at the same time offering service at rates that are attractive economic alternatives to cellular rates. The only way that such an equation works is to have sufficient spectrum capacity to permit a low margin, high volume business. This challenge is made all the more problematic because of severe limitations on the amount of usable spectrum available to individual PCS operators; the need to relocate numerous microwave users; and the blockage that will exist in some critical high density and/or metropolitan areas as a result of grandfathered microwave operations.

The amount of spectrum assigned to a PCS operator will predetermine a system's capacity and its costs. Rather than assign insufficient spectrum, Cox urges the Commission to enable PCS to reach its potential to be a truly personal portable communicator priced within the means of all the public. Adequate spectrum assignments are critical to achieving this result.

II. THE COMMENTS DEMONSTRATE THAT MAJOR TRADING AREA IS THE APPROPRIATE SIZE FOR THE INITIAL LICENSING AREA

The comments submitted in response to the Notice amply support the Commission's proposal to establish Major Trading Areas ("MTAs") as the

optimum size markets for initial licensing of PCS.[21] Many commenters support licensing markets larger than the MSA/RSA markets, and a few support nationwide licenses. Significantly, a large majority of commenters urging smaller markets are plainly trying to protect their interests in other telecommunications services.

A. The Goal of Encouraging Diversity Can Be Achieved Without Licensing PCS on an MSA/RSA Basis.

Cox supports the goal of encouraging diverse participation and effective competition in PCS. Unlike many other commenters, however, Cox believes that these goals are better achieved by setting eligibility criteria in a manner that fosters diversity and by allocating sufficient spectrum to ensure that PCS licensees can compete with other telecommunications services.[22]

The majority of comments submitted by entities without significant LEC or cellular interests support market definitions larger than the MSA/RSA or Basic Trading Area definitions.[23] MTAs are defined communities of interest that

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21/ See, e.g., Comments of American Personal Communications at 21-32; Comments of Cellular Communications, Inc. at 15-20; Comments of Qualcomm Incorporated at 3-4; Personal Communications Network Services of New York, Inc. at 25-26; Comments of PerTel, Inc. at 7-8.

22/ See also Comments of Omnipoint Communications, Inc. 10-14.

23/ See, e.g., Comments of American Personal Communications 21-25; Comments of Qualcomm Inc. at 3-4; Comments of Personal Communications Services of New York, Inc at 25-26 . There was also significant support for other market area definitions larger than the MSA/RSA or Basic Trading Areas. See, e.g., Comments of National Telecommunications and Information Administration at 11-22 (supporting 183 markets as defined by the Department of Commerce); Comments of Tel/Logic, Inc. at 7-8 (supporting market boundaries coterminous with LATAs).

mirror established markets for telecommunications services. MTAs also have the virtue of being a reasonable middle ground between the extremes of nationwide and MSA/RSA licensing.

Wireless services markets for cellular paging and SMR, notwithstanding that they were originally licensed in smaller areas, all have developed along regional lines.[24/] There is no sound reason to repeat the mistake of licensing other wireless services for smaller areas and watch PCS providers struggle to combine licenses to provide regional service areas in response to market conditions.

Requiring PCS providers to develop regional systems through expensive and time consuming acquisitions, as the Notice recognizes, will merely repeat the now discredited form of licensing used for cellular service, handicapping PCS providers vis-a-vis existing regional cellular operations.[25/] As became clear in the cellular licensing process, use of smaller licensing areas combined with a lottery process for licensee selection fostered circumstances in which speculators could cash in on winning lottery tickets. This delayed the provision of service to the public and the inevitable development towards regional service areas. Licensing PCS on the same localized basis may delay the development of an effective wireless competitor for another decade, further entrenching the markets of existing service providers.

24/ See Comments of McCaw Cellular Communications, Inc. at 25-26.

25/ It would also be contrary to the Commission's proposed relaxation of the Specialized Mobile Radio "40 mile rule" to enable the combination of SMR operations along regional lines.

Additionally, wireless market studies have shown that system coverage is the single most important consideration to customers. MTAs match the wide areas of coverage other wireless carriers can provide. Significantly, the LEC-dominated cellular industry generally has consolidated into regional companies, reflecting the economies of scope available from providing service to an entire region. Extremely broad multi-state areas can be accessed by a cellular customer with "home" rates. PCS customers will have similar expectations.

If they are to be effective local competitors, PCS providers will regionalize their networks or compete at a severe disadvantage.[26/] PCS market definitions that essentially reflect regional markets are imperative, and MTAs have the virtue of reflecting these regional communities of interest. Licensing PCS based on MTAs also lessens the burden on Commission staff and resources that otherwise must be expended by approving the applications of PCS licensees that will seek to create regional systems through acquisition.[27/]

Some commenters argue that MTA licensing areas would allow rural areas to remain undeveloped or impede the introduction of new PCS-type services.[28/]

26/ Failure to license PCS on a regional basis will further disadvantage PCS vis-a-vis cellular since PCS providers will not be in a position to centralize critical and costly administrative and other functions.

27/ An obvious and unfortunate by-product of requiring PCS licensees to consolidate operations on a market-by-market basis is to create unnecessarily higher PCS costs to consumers.

28/ See Comments of McCaw Cellular Communications at 17-18; Comments of Clear Creek Mutual Telephone Company et al. at 5-6; Comments of Lincoln Telephone and Telegraph Company at 10-12 and Joint Comments of National Rural Telecom Association and Organization for the Protection and Advancement of Small Telephone Companies at 8.

This argument overlooks economic realities. For example, the fact that at least five construction permits for cellular systems in RSAs expired without systems having been built only emphasizes that some rural markets could not support a stand-alone cellular system and likely could not support the microcellular infrastructure of a stand-alone PCS system.[29/] As part of a regional system, however, economies of scope and scale may provide a margin for profitability for telecommunications systems in less densely-populated and traveled areas.

Moreover, obtaining financing for system construction on fair and equitable terms will be easier for regional systems than for stand-alone systems in rural areas. In the very limited circumstance where an MTA-based licensee might choose not to expand coverage of its system into a particular area, as long as the Commission's rules allow, the licensee could prosecute a partial assignment of its license to a company interested in providing service.[30/] Thus, there is no basis to assume that MTA market definitions will inhibit service to rural areas.

The proponents of the MSA/RSA licensing scheme for PCS overwhelmingly are LECs and other entities with significant interests in cellular carriers.[31/] Their support for the smallest possible licensing areas transparently is

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29/ See Comments of McCaw at 17 n. 31.

30/ Cox notes that the Commission's RSA cellular rules provide for this type of partial assignment.

31/ See, e.g., Comments of Cellular Telecommunications Industry Association at 36-59; Comments of ALLTEL Service Corporation at 12-15; Comments of McCaw Cellular Communications, Inc. at 14-18; Comments of Southwestern Bell Corporation at 20-24; Comments of OPASTCO at 8-13; Comments of Pacific Telesis Group at 21-28.